

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU of LAND MANAGEMENT

OIL SHALE RESEARCH, DEVELOPMENT AND DEMONSTRATION (R, D, and D) LEASE

Part 1. Lease Rights Granted

This lease is entered into on _____ to be effective on _____ by the UNITED STATES OF AMERICA (the “Lessor”), acting through the Bureau of Land Management (hereinafter called the “Bureau”), of the Department of the Interior (the “Department”), and

(the “Lessee”), pursuant and subject to the provisions of the Mineral Leasing Act of February 25, 1920 as amended (30 U.S.C. 181–287), hereinafter called the “Act”, more specifically section 21 of the Act (30 U.S.C. 241), to the provisions of the Energy Policy Act of 2005, Pub. L. 108-58, Section 369, and to the terms, conditions, and requirements of the regulations promulgated by the Secretary of the Interior (the “Secretary”) at 73 Federal Register 69414 (Nov. 18, 2008), and of any other regulations promulgated by the Secretary not inconsistent with those regulations. To the extent the provisions of this lease are inconsistent with the requirements of any regulation or order, the lease terms govern.

Part 2. Terms and Conditions

Section 1. Definitions

As used in this lease:

(a) “Authorized Officer” means any employee of the Bureau of Land Management delegated the authority to perform the duty described in the section in which the term is used.

(b) “Commercial Quantities” means production of shale oil quantities in accordance with the approved Plan of Development for the proposed project through the research, development and demonstration activities conducted on the research, development , and demonstration (R, D and D) lease, based on, and at the conclusion of which, there is a reasonable expectation that the expanded operation would provide a positive return after all costs of production have been met, including the amortized costs of the capital investment.

(c) “Leased Lands” means the lands described as follows:

(d) “Oil shale” means a fine-grained sedimentary rock containing: (1) organic matter which was derived chiefly from aquatic organisms or waxy spores or pollen grains, which is only slightly soluble in ordinary petroleum solvents, and of which a large proportion is distillable into synthetic petroleum, and (2) inorganic matter, which may contain other minerals. This term is applicable to any argillaceous, carbonate, or siliceous sedimentary rock which, through destructive distillation, will yield synthetic petroleum.

(e) “Shale oil” means synthetic petroleum derived from the destructive distillation of oil shale.

Section 2. Grant to Lessee

The Lessee is hereby granted, subject to the terms of this lease, the exclusive right and privilege to drill, mine, extract, remove, beneficiate, concentrate, process and dispose of the oil shale and the products of oil shale contained within the Leased Lands as proposed in the nomination submitted in response to the Federal Register notice of January 15, 2009. In accordance with plans of development approved pursuant to Section 8, the Lessee may utilize or dispose of all oil shale and oil shale products, together with the right to construct on the Leased Lands all such works, buildings, plants, structures, roads, power lines, and additional facilities as may be necessary or reasonably convenient for the mining, extraction, processing, and preparation of oil shale and oil shale products for market. The Lessee has the right to use so much of the surface of the Leased Lands as may reasonably be necessary in the exercise of the rights and privileges herein granted. Occupancy and use of existing structures and facilities will be authorized by the approval of a plan of development.

Section 3. Lessor’s Reserved Interests in the Leased Lands

The Lessor reserves:

- (a) The right to continue existing uses of the leased lands and the right to lease, sell, or otherwise dispose of the surface or other mineral deposits in the lands for uses that do not unreasonably interfere with operations of the Lessee under this lease.
- (b) The right to permit for joint or several use, such easements or rights-of-way, including easements in tunnels or shafts upon, through, or in the Leased Lands, as may be necessary or appropriate to the working of the Leased Lands or other lands containing mineral deposits subject to the Mineral Leasing Act of 1920, and the treatment and shipment of the products thereof by or under authority of the Lessor, its lessees, or permittees, and for other public

purposes. Lessor shall condition such uses to prevent unnecessary or unreasonable interference with rights of the Lessee.

Section 4. Lease Term

The lease is issued for a term of ten years with the option for an extension not to exceed five years upon demonstration to the satisfaction of the authorized officer that a process leading to production in commercial quantities is being diligently pursued, consistent with the schedule specified in the approved plan of development. The lease is subject to conversion to a twenty-year lease under the conditions specified in section 23.

Section 5. Rentals: Non-commercial Production

The Lessee shall pay the Lessor annual rental of \$2.00 in advance for each acre or fraction thereof during the continuance of the lease. Rental is payable annually on or before the anniversary date of the lease beginning the 6th year of the lease. The failure to pay rental by the anniversary date shall be grounds for termination of the lease. Should the Lessee fail to pay the full amount by the anniversary date, BLM will notify the Lessee of this failure and provide the lessee a grace period of 15 days from the day the lessee received notice to make payment in full. Should no payments be received during the grace period, the lease shall terminate without the need for further administrative proceedings.

Section 6. Royalties

- (a) As long as the Lessee is not producing commercial quantities from the leasehold, as determined by the Lessor, the Lessor waives the requirement for royalty on any production.
- (b) Upon production in commercial quantities:
 - (1) Payments of royalties under this lease shall be subject to 43 CFR Subpart 3903; and
 - (2) The R, D, and D lessee will apply for conversion to an Oil Shale Commercial Lease pursuant to section 23.

Section 7. Bonds

(a) Prior to conducting operations on this lease, the Lessee shall provide a bond payable to the Secretary in the amount determined by the authorized officer, conditioned upon compliance with all terms and conditions of the lease and the plan of development. This bond shall be of a type authorized by 43 CFR 3904.13, and must be sufficient to cover all costs associated with reclamation and abandonment activities. The authorized officer may require additional bond upon determining that it is necessary to assure full compliance for the operations conducted under this lease. The Lessee shall have the right to submit information to demonstrate that a lesser amount would be sufficient to remedy noncompliance and appeal the determination to the State Director.

(b) Upon request of the Lessee, the bond may be released as to all or any portion of the Leased Lands affected by exploration or mining operations, when the Lessor has determined that the Lessee has fulfilled all lease obligations, successfully met the reclamation requirements of the approved development plan, and that operations have been carried out and completed with respect to these lands in accordance with the approved plan.

Section 8. Plan of Development

(a) The operator must submit to the authorized officer a plan of development describing in detail the proposed exploration, prospecting, testing, development or mining operations to be conducted. Exploration, mining plans, and in situ development plans incorporated into a plan of development must be consistent with the requirements of the lease for the protection of non-mineral resources and for the reclamation of the surface of the lands affected by the operations on Federal lease. The authorized officer will consult with any other agency involved and will promptly approve the plans or indicate what additional information is necessary to conform to the provisions of the established requirements.

(b) For surface or underground mining operations -- The lessee/operator must submit two copies of the plan of development to the authorized officer for approval. An additional copy must be submitted if the surface managing agency is other than the BLM. The plan of development must contain, at a minimum, the following:

(1) Names, addresses and telephone numbers of those responsible for operations to be conducted under the approved plan to whom notices and orders are to be delivered, names and addresses of lessees, Federal lease serial numbers and names and addresses of surface and mineral owners of record, if other than the United States;

(2) A general description of geologic conditions and mineral resources, with appropriate maps, within the area where mining is to be conducted;

(3) A copy of a suitable map or aerial photograph showing the topography, the area covered by the lease(s), the name and location of major topographic and cultural features and the drainage plan away from the affected area;

(4) A statement of proposed methods of operating, including a description of the surface or underground mining methods, the proposed roads, the size and location of structures and facilities to be built, mining sequence, production rate, estimated recovery factors, stripping ratios (if applicable) and number of acres in the Federal lease(s) or permit(s) to be affected;

(c) For in situ operations - A statement of the proposed method of development that includes:

(1) A description detailing the in situ methodology;

(2) The equipment to be used in development and extraction;

(3) The proposed access roads;

(4) The size, location and schematics of all structures and facilities to be built;

(5) The development sequence and schedule;

(6) The number of acres in the Federal lease to be affected;

(7) Typical schematics of all drilled well types including those used for heating, freezing, disposal or production activities detailing all casing and completion design including materials used in all cementing operations; and

(8) A detailed description of the methods and means to protect and monitor all aquifers.

(d) For every plan of development, the lessee must provide the following:

(1) An estimate of the quantity and quality of the mineral resources.

(2) An explanation of how maximum economic recovery (MER) (see 43 CFR 3900.2) of the resource will be achieved for the Federal lease. All minable portions of the deposit must be mined /developed. If a portion of the deposit is not to be mined or is to be rendered unminable by the operation, the lessee must submit appropriate justification to the authorized officer for approval;

(3) Appropriate maps and cross sections showing:

(i) Federal lease boundaries and serial numbers;

(ii) Surface ownership and boundaries;

(iii) Locations of existing and abandoned mines and existing oil and gas well locations

(iv) Typical structure cross sections;

(v) Location of shafts or mining entries, strip pits, waste dumps, retort facilities, and surface facilities; and

(vi) Typical mining or in situ development sequence, with appropriate timeframes;

(4) A narrative which addresses the environmental aspects associated with the proposed mine which includes, at a minimum, the following:

(i) An estimate of the quantity of water to be used and pollutants that may enter any receiving waters;

(ii) A design for the necessary impoundment, treatment or control of all produced water, runoff water, and drainage from workings.

(iii) A description of measures to be taken to prevent or control fire, soil erosion, subsidence, pollution of surface and ground water, pollution of air, damage to fish or wildlife or other natural resources, and hazards to public health and safety; and

(5) A reclamation plan and schedule for all Federal lease(s), license(s), or permit(s) detailing all reclamation activities. The reclamation plan will include for revegetation:

(i) Proposed methods of preparation and fertilizing the soil prior to replanting;

(ii) Types and mixtures of shrubs, trees or tree seedlings, grasses or legumes to be planted; and

(iii) Types and methods of planting, including the amount of grasses or legumes per acre, or the number and spacing of trees or tree seedlings, or combinations of grasses and trees;

(6) The method of abandonment of operations on Federal lease(s), license(s), and permit(s) proposed to protect the unmined recoverable reserves and other resources, including the method proposed to fill in, fence or close all surface openings which are a hazard to people or animals. For in situ operations a description of the method and materials used to plug all abandoned development/production wells must be included;

(7) Any additional information that the authorized officer deems necessary for approval of the plan.

(e) For a plan of development involving only exploration activities – the lessee must comply with subsection (d) of this section.

(f) Occupancy and use of existing structures and facilities will be authorized by the approval of this plan of development.

(g) The authorized officer may condition the approval on reasonable modifications of the plan to assure protection of the environment, health and safety, royalty accountability, and maximum efficient recovery.

(h) After plan approval, the Lessee must obtain the written approval of the authorized officer for any change in the plan approved under subsection (a).

(i) The Lessee may be required as part of plan approval to conduct operations in compliance with applicable sections of 43 CFR Part 3160, Onshore Oil and Gas Orders, 43 CFR Subpart 3931, and 43 CFR Part 3590 which will be identified in the plan approval document.

(j) The lessee shall not commence or continue any exploration, extraction, or other surface-disturbing activity without an approved plan of development, and shall conduct all surface-disturbing activities in compliance with an approved plan of development.

Section 9. Operations on the Leased Lands

(a) The Lessee shall conduct all operations under this lease in compliance with all applicable Federal, State

and local statutes, regulations, and standards, including those pertaining to water quality, air quality, noise control, threatened and endangered species, historic preservation, land reclamation, and orders of the authorized officer (written, or if oral, reduced to writing within ten days). The Lessee shall employ best management practices to minimize impacts to other resource values.

(b) The Lessee shall avoid, or, where avoidance is impracticable, minimize, and where practicable correct, hazards to the public health and safety related to its operations on the Leased Lands.

(c) Lessee shall carry on all operations in accordance with approved methods and practices as provided in the operating regulations designated as applicable under Section 8 above and the approved plan of development. Activities will be conducted in a manner that minimizes adverse impacts to the land, air, water, cultural, biological, visual, and other resources, including mineral deposits not leased herein, and other land uses and users and will not cause unnecessary or undue degradation of the lands.

(d) The Lessee shall conduct all operations in a manner that will not unreasonably interfere with operations by entities that have prior existing rights.

Section 10. Water Rights

All water rights developed on the lease by the Lessee through operations on the Leased Lands shall immediately become the property of the Lessor. As long as the lease continues, the Lessee shall have the right to use those water rights free of charge for activities under the lease.

Section 11. Development by In Situ Methods

Where in situ methods are used for the production of shale oil, the Lessee shall not place any entry, well, or opening for such operations within 500 feet of the boundary line of the Leased Lands without the permission of, or unless directed by the authorized officer.

Section 12. Inspection

The Lessee shall permit any authorized officer or representative of the Lessor at any reasonable time:

(a) To inspect the Leased Lands and all surface and underground improvements, works, machinery, and equipment, and all books and records pertaining to operations and surveys or investigations under this lease; and

(b) To copy and make extracts from any books and records pertaining to operations under this lease.

Section 13. Reports and Maps

(a) The Lessee shall submit to the Lessor in such form as the latter may prescribe, not more than 60 days after the end of each quarter of the lease year, a report covering that quarter which shall show the amounts and quality of all products and by-products removed and sold from the lease, the amount used for production purposes or unavoidably lost, and the amount in storage. The report shall also show the price received for all products or by-products sold, in such detail as the Lessor prescribes. The Lessee shall file with the proper office of Lessor, no later than 30 days after the effective date thereof, any contract or evidence of other arrangement for sale or disposal of production.

(b) The Lessee shall prepare and furnish at such times and in such form as the Lessor may prescribe, maps, photographs, reports, statements, and other documents required.

(c) The Lessee shall conduct surveys and monitor environmental effects as specified in the Addendum to this lease.

Section 14. Assignment

The Lessee may assign any interest in this lease with the approval of the authorized officer, subject to the Assignor retaining liability for all obligations that accrued prior to the assignment and the provision of bond by the Assignee for all liabilities arising after

the assignment. The Assignor shall maintain bond for liabilities arising in the period prior to the assignment, unless the assignee provides bond for the entire period of the lease. The Assignee shall agree to conduct the research, development, and demonstration project outlined in the nomination for the lease, or to obtain BLM's approval to substitute the research, development, and demonstration of another technology not currently being utilized.

Section 15. Heirs and Successors in Interest

Each obligation of this lease shall extend to and be binding upon, and every benefit shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Section 16. Relinquishment of lease

The Lessee may relinquish in writing at any time all rights under this lease. Upon Lessor's acceptance of the relinquishment, Lessee shall be relieved of all future obligations under the lease. The Lessee shall promptly pay all royalties due and reclaim the relinquished acreage in accordance with the plan of development.

Section 17. Remedies in Case of Default

If the Lessee fails to comply with applicable laws, regulations, or the terms, conditions, and stipulations of this lease and the noncompliance continues for a period of 30 days after service of notice thereof, this lease shall be subject to cancellation. The Lessor may (1) suspend operations until the required action is taken to correct noncompliance, or (2) institute appropriate proceedings in a court of competent jurisdiction for the forfeiture and cancellation of this lease as provided in Section 31 of the Act (30 U.S.C. 188) and for forfeiture of any applicable bond. If the Lessee fails to take prompt and necessary steps to (a) prevent loss or damage to the mine, property, or premises, (b) prevent danger to the public, or (c) avoid, minimize or, repair damage to the

environment, the Lessor may enter the premises and take such measures as he may deem necessary to prevent, or correct the damaging, dangerous, or unsafe condition of the mine or any other facilities upon the Leased Lands. Those measures shall be at the expense of the Lessee.

Section 18. Delivery of Premises in Case of Forfeiture

(a) At such time as all or portions of this lease are returned to Lessor, the Lessee shall deliver to the Lessor the land leased, wells, underground support structures, and such other supports and structures necessary for the preservation of the mine workings on the leased premises or deposits and place all workings and wells in condition for suspension or abandonment. Within 180 days thereof, Lessee shall remove from the premises all other structures, machinery, equipment, tools, and materials as required by the authorized officer. Any such property remaining on the Leased Lands beyond the 180 days, or approved extension thereof, shall become the property of the Lessor. If the Lessee does not remove all such property, the lessee shall be liable for the cost of removal and disposal in the amount actually incurred by the Lessor.

(b) Lessee shall reclaim all lands which have been disturbed and dispose of all debris or solid wastes in an approved manner in accordance with the schedule established in the plan of development and maintain bond coverage until such reclamation is complete.

Section 19. Protection of Proprietary Information

(a) This lease, and any activities there under, shall not be construed to grant a license, permit or other right of use or ownership to the Lessor, or any other person, of the patented processes, trade secrets, or other confidential or privileged technical information (hereafter in this section called "technical processes") of the Lessee or any other party whose technical processes are embodied in improvements on the Leased Lands or used in connection with the lease.

(b) Notwithstanding any other provision of this lease, the Lessor agrees that any technical processes obtained from the Lessee which are designated and segregated by the Lessee as confidential shall: (1) Not be disclosed to persons other than employees of the Federal Government having a need for such disclosures and (2) not be copied or reproduced in any manner except to the extent required for the Lessor to administer this lease or to comply with a legal requirement or an order of an United States court. The Lessor further agrees this material may not be used in any manner that will violate their proprietary nature.

(c) Prior to any disclosure pursuant to a Freedom of Information Act (FOIA) request, the Bureau will notify the submitter of the specific information which it has initially determined to release and give it thirty (30) days to provide a justification for the nondisclosure of the information under exemption 4 or other relevant exemptions of FOIA. The submitter's justification should address in detail, pursuant to the procedures in 43 CFR 2.23, whether the information: (1) Was submitted voluntarily and falls in a category of information that the submitter does not customarily release to the public; or (2) If the information was required to be submitted, how substantial competitive or other business harm would likely result from release. If after reviewing the submitted information, BLM decides to release the information over the submitter's objections, it will notify the submitter that it intends to release the information 10 business days after the submitter's receipt of the notice.

Section 20. Lessee's Liability to the Lessor

(a) The Lessee shall be liable to the United States for any damage suffered by the United States in any way arising from or connected with Lessee's activities and operations conducted pursuant to this lease, except where damage is caused by employees or contractors of the United States acting within the scope of their authority or contract.

(b) In any case where liability without fault is imposed on the Lessee pursuant to this section, and the damages involved were caused by the action of a third party, the rules of subrogation shall apply in

accordance with the law of the jurisdiction where the damage occurred.

(c) The Lessee shall indemnify and hold harmless the United States from any and all claims arising from or connected with Lessee's activities and operations under this lease.

Section 21. Appeals

The Lessee shall have the right to appeal orders or decisions of the BLM under 43 CFR 3900.20 or 43 CFR Part 4, Subpart E.

Section 22. Special Stipulations

The special stipulations that are attached to and made a part of this lease are binding upon the Lessee and the Lessee's employees, agents, and operators. The failure or refusal of the Lessor, its employees, agents, or operators, to comply with these stipulations shall be deemed a failure of the Lessee to comply with the terms of the lease. The special stipulations may be revised or amended, in writing, by mutual consent of the Lessee and the Lessor following appropriate notice to the public.

Section 23. Conversion

(a) Applications to convert this R, D and D lease into commercial leases are subject to this section and subject to the regulations at parts 43 C.F.R. 3900, 3910, and part 3930, except for lease sale procedures at subparts 3921 and 3924 and § 3922.40.

(b) A lessee of an R, D and D lease must apply for the conversion of the R, D and D lease to a commercial lease within 90 calendar days after the commencement of production in commercial quantities. No specific form of application is required. The application for conversion must be filed in the BLM state office that issued the R, D and D lease. The conversion application must include:

(1) Documentation that there have been commercial quantities of oil shale produced from the lease;

(2) Documentation that the lessee consulted with state and local officials to develop a plan for mitigating the socioeconomic impacts of commercial development on communities and infrastructure;

(3) A payment no less than \$1000 per acre of the lease and equal to the fair market value (FMV) of the lease; and

(4) Bonding as required by 43 CFR §3904.14.

(c) The BLM will approve the conversion application, in whole or in part, if it determines that:

(1) There have been commercial quantities of shale oil produced from the lease;

(2) The payment for the lease met FMV and was not less than \$1000 per acre;

(3) The lessee consulted with state and local officials to develop a plan for mitigating the socioeconomic impacts of commercial development on communities and infrastructure;

(4) The bond proffered is consistent with subsection (b)(4) of this section; and

(5) Commercial scale operations can be conducted, subject to mitigation measures to be specified in stipulations or regulations, or in conditions of approval of a plan of development, in a manner that complies with applicable law and regulations.

(d) The commercial lease must contain terms consistent with the regulations in 43 CFR Parts 3900, 3910, 3930.

(e) Such commercial lease shall contain stipulations developed through appropriate NEPA analysis.

(f) The Secretary, whenever he/she determines it necessary to promote development or finds that the lease cannot be successfully operated under its terms, may waive, suspend or reduce the rental, or reduce the royalty, on an entire leasehold, or on any deposit, tract or portion thereof, except that in no case shall the royalty be reduced to zero percent. An application for any of these benefits shall be filed with the authorized officer.

Section 24. Reimbursable Costs

Lessee will pay BLM the actual and reasonable costs after the signing of this Lease for the review and approval of applications for permits, plans of development, notices, and similar submissions. Lessee's payment will be due prior to receiving any requested permits or approvals. If the Lessee requests an estimate, BLM will review complete submissions and provide the Lessee with an estimation of costs of required processing, analyses, research and documentation. These costs may be according to a schedule approved by the BLM State Director. The recoverable costs include, but are not limited to, BLM's costs to: (1) assure compliance with the National Environmental Policy Act, the National Historic Preservation Act, or other environmental, natural resource, or cultural resource statutes or regulations; (2) process the submission and/or provide a responsive document and any supporting documents; and (3) review monitoring, engineering, construction, and operation plans for the maintenance or abandonment of any authorized facility. If the Lessee withdraws an application, plan, or other submission, BLM may collect the costs of its work on that submission through the date of withdrawal thereafter until all obligations under the lease are met. BLM may also collect its costs when it denies or modifies an application, plan, notice, or any other submission.

Section 25. Special Stipulations.

The special stipulations attached to this lease are made a part of this lease.

Section 26. Applicable Regulations

All references or citations to regulations in this lease are to the regulations at 73 Federal Register 69414 (Nov. 18, 2008), which are hereby incorporated as terms of this lease, whether or not those regulations are in effect or are amended at some later time.

THE UNITED STATES OF AMERICA

By _____

(Company or Lessee Name)

(Signature of Lessee)

(DOI)

(Title)

(Title)

(Date)

(Date)

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